

REMARKS

Claims 1, 2, 4 and 5 have been amended and claims 7 to 12 have been added.

Claims 1 to 12 are now active in this application.

The specification has been amended to overcome the objections kindly noted by the Examiner.

A proposed drawing correction for Figure 2 is attached hereto to overcome the objection. Approval is respectfully requested.

The objection to the term “matched filter correlators” is not understood since these terms mean exactly what they state, namely that the filter correlators are matched. These terms can also be defined as a filter whose impulse response is matched to the transmitted preamble signal, up to a phase offset. If the transmitted preamble signal is given by the equation in paragraph [0019], where N is the preamble length, then the matched filter correlator impulse response is given by $p(t) = e^{j\phi} \cdot \sum_{n=0}^{N-1} P[n] \cdot g(t-nT)$. Other objected to matters have been addressed in the claims.

Claims 1 to 4 were rejected under 35 U.S.C. 103(a) as being unpatentable over d1r4 in view of Ballot 2 and Mathworld. The rejection is respectfully traversed.

The invention as claimed deals with a preamble having a plurality of separate subpreamble portions of consecutive non-interleaved symbols followed by data symbols. This is expressed by the clause “providing a data packet having a framing format including a preamble split into a plurality of subpreambles of non-interleaved symbols followed by data symbols”. No such arrangement is taught or suggested by any of the applied references either alone or in the total combination as claimed. Note that d1r4 has an interleaved preamble and nowhere even hints at splitting the preamble into a plurality

of subpreambles. Furthermore, as is made clear from the sentences of d1r4 immediately following the section cited, the preamble is not split into a plurality of subpreambles per se, but rather is interspersed with the data. As claimed, the preamble is exactly what a preamble is defined to be, namely something that comes first or prior to the data. Claims 1 and 4 have been amended to redundantly clarify this feature. The other cited references in no way overcome this deficiency in d1r4.

Claim 1 further requires the step of, for individual subpreamble and for combined subpreamble options, determining the following parameter:

$$\beta_i = \frac{1}{T_i^2} \int_{t_i}^{t_i+T_i} \left| r(t) e^{-j\hat{\phi}_i} \right|^2 dt;$$

where T_i is the preamble or subpreamble duration in each option, t_i is the preamble or subpreamble start time, β_i is the approximation of α_i , and $\hat{\phi}_i$ is the estimated phase shift in each option. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claim 1 yet further requires the step of determining synchronization using correlation with a priori known symbols using the subpreamble or combined subpreamble option which provides the lowest β . No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claims 2 and 3 depend from claim 1 and therefore define patentably over the applied references for at least the reasons presented above with reference to claim 1.

Claim 2 further limits claim 1 by requiring that the plurality of subpreambles be two, the two subpreambles being separated in time by other non-data symbols. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claim 3 further limits claim 2 by requiring that the other symbols be one of other data signals or a priori known symbols. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claim 4 requires, among other steps, the step of providing a data packet having a framing format including a preamble split into a plurality of subpreambles of non-interleaved symbols followed by data symbols. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references as noted in connection with the above argument relative to claim 1.

Claim 4 further requires the step of determining whether any of the subpreambles are have been affected by at least one of impulse noise or burst noise. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claim 4 still further requires the step of determining synchronization using the subpreambles of the plurality of subpreambles which have not been affected by the at least one of impulse noise or burst noise. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claims 5 and 6 depend from claim 4 and therefore define patentably over the applied references for at least the reasons stated above with reference to claim 4.

In addition, claim 5 further limits claim 4 by requiring that the plurality of subpreambles be two, the two subpreambles being separated in time by other non-data symbols. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claim 6 further limits claim 5 by requiring that the other symbols be one of other data signals or a priori known symbols. No such step is taught or suggested either alone or in the combination as claimed in any of the applied references as well as not shown in any proper combination of the applied references.

Claims 7 to 12 further limits claims 1 to 6 respectively by requiring that the preambles be separated by a number of non-data symbols greater than a predetermined typical noise impulse length. No such feature is taught or suggested either alone or in the combination as claimed by any of the cited references taken alone or in any proper combination .

In view of the above remarks, favorable reconsideration and allowance are respectfully requested.

Respectfully submitted,



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